

## Pollen Pictorial of some Medicinal Plants from Pakistan

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### ABSTRACT

In present account an effort was made to identify some important medicinal plants with particular emphasis to their pollen pictorial. In total of 7 species including *Aerva javanica* (Burm.f.) Schult., *Calotropis procera* (Willd.) R. Br. I. c., *Periploca aphylla* Dcne., *Eremostachys vicaryi* Benth. ex Hook. f., In Jacq., *Salvia moorcroftiana* Wall. ex Bth. *Pongamia pinnata* (L.) Pierre, and *Viola stocksii* Boiss. were studied. Macrophotography of plants were done in field by using Sony Digital Camera where as microphotography of pollen was done in EM laboratory Quaid-i-Azam University, Islamabad. This pictorial is considered to be useful in correct identification of these precious medicinal plant species for future and related research work.

### INTRODUCTION

Geographically, Pakistan is located in a transitional zone where the summer monsoon influenced climate of the east gradually merges with the winter precipitation dominated Mediterranean climate of the west. Out of the total land area of Pakistan, 88 percent is classified as arid and semi arid, with only 12 percent being humid and sub humid, primarily located in the Himalayan and Karakoran under forest cover (Rafiq, 1997, Karki and Williams, 1999). Of the nearly 5691 species of flowering plants reported to be occurring in Pakistan and Kashmir, a very large number is found in the northern and north western parts of Pakistan (Stewart, 1972, 1982).

Long standing research on medicinal plants of Pakistan in the last fifty years points to a rich resource base, spread over a wide range of ecological zones, with estimates of numbers of plant species having medicinal properties varying from 3200 species (FAO, 1987) at the upper end of the spectrum to 1,000 at the lower end (Ahmad, 1996). Of these species approximately 500 are known for their active constituents from research conducted in Pakistan and elsewhere, and around 250-300 specie known to have entered the herbal markets of Pakistan (Williams and Ahmed, 1999). It has been reported that approximately 400 to 600 medicinal plants are more frequently used in herbal preparations and tough several species which are common in certain areas are known to be used locally in traditional preparations, they have not been scientifically investigated for wider use (Rafiq, 1997).

In present study an account was made to study pollen of some important Medicinal plant species in order to make pictorial for both pollen and whole plant for correct identification in future studies.

### METHODOLOGY

Study was conducted during March 2005 to February 2006 in Herbarium of Quaid-i-Azam University Islamabad Pakistan. Frequent field trips were arranged to resource based areas of Pakistan in order to identify the exact phytogeography of selected medicinal plant species. Plants were properly sketched by Sony Digital Camera in their habitat. After macrophotography these plants with polleniferous material was properly collected dried and preserved in herbarium for detailed pollen studies. Microphotography of pollen was done in TEM lab of Q.A.U. Islamabad. Voucher specimens were deposited in herbarium with photograph as a reference material for future studies.

**Table 1.** Taxonomic Perspective of Selected Medicinal Plants.

S #	Botanical Name	English Name	Local Name	Family	Flowering period	Habit	Disease treated
01	<i>Aerva javanica</i> (Burm.f.) Schult.	Snow Bush	Chiti Bui	Amaranthaceae	January-October	Herb	Kidney stone, inflammation
02	<i>Calotropis procera</i> (Willd.) R. Br. I. c.	Sodom's Apple	Akk	Asclepiadaceae	Throughout the year	Spreading shrub	Gastritis, malaria, cholera, asthma and skin diseases
03	<i>Periploca aphylla</i> Dcne. In Jacq.	Periploca	Bata	Asclepiadaceae	April-July	Shrub	Skin diseases, ulcer, constipation
04	<i>Eremostachys vicaryi</i> Benth.	Eremostachys	Sufaidphulari	Lamiaceae	March-April	Herb	Skin diseases, antiseptic

	ex Hook. f						and antimicrobial
05	<i>Salvia moorcroftiana</i> Wall. ex Bth.	Wild sage	Gahi Kund	Lamiaceae	February-May	Herb	Headache, fever, skin diseases
06	<i>Pongamia pinnata</i> (L.) Pierre	Pongame	Suckchain	Fabaceae	Throughout the year	Tree	Toothache and gum diseases
07	<i>Viola stocksii</i> Boiss.	Blue violet	Jangli Banifsha	Violaceae	March-April	Herb	Sexual Tonic

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**A**



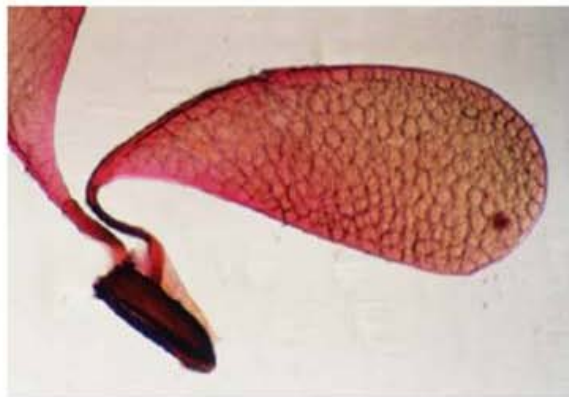
**B**

**Plate 1 A-B.** *Aerva javanica*, A, Polar view, B. (1000x)

A



B



**Plate 2. A-B.** *Calotropis procera*, A, Polar view, B. (40x).

**A**



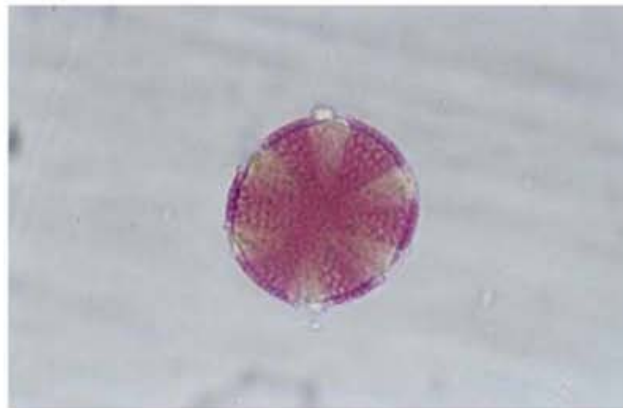
**B**



**Plate 3 A-B.** *Periploca aphylla*, A, Polar view, B. (200x)



A



B

**Plate 4 A-B.** *Eremostachys vicaryi*, A, Polar view, B. (1000x).

A



B



**Plate 5 A-B.** *Salvia moorcroftiana*, A, Polar view, B. (1000x)



A



B



C

**Plate 6 A-C.** *Pongamia pinnata*, A, Polar view, B., Equatorial view, C. (1000x).

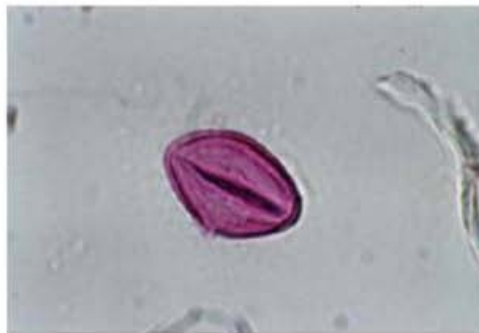




**A**



**B**



**C**

Plate 7 A-C: *Viola stocksii* A, Polar view, B., Equatorial view, C. (1000x).